Alpha
Engineering Consultant

PROJECT QUALITY PLAN

THE TRSEOR

For

M/S KEPPEL LAND REALTY PTE LTD

Copy No.	

Prepared By: Yip Yoke Fun

Authorised By: Richard Teo

Date: 15 June 2007

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SECTION 1

QUALITY PLAN CONTROL AND DISTRIBUTION

1.1 List of Copy Holders

Copy No.	Copy Holder	Date of Issue
1	1428-PQP	21 October 2005
2	Loh Fook Yuen	21 October 2005

1.2 Revision Record

Revision	Date of Issue	Section Reference	Page(s)	Remarks
0	21 October 2005	1 to 10	26	+ 8 pgs (Sect 4.1 – Overall Programme)
1	7 April 2006	1 to 10	26	
2	13 September 2006	1 to 10	26	+ 9 pgs (Sect 4.1 – Overall Programme)
3	15 June 2007	1 to 10	26	+ 9 pgs (Sect 4.1 – Overall Programme)

SECTION 2

PROJECT INFORMATION

2.1 Project Description

Type of Development	Residential

Statistics of Development	
Site Area, m²	7478.20
Nett Floor Area, m²	-
Gross Floor Area, m²	10,469.48
Covered Carpark, m²	3420.60
No. of Covered Carpark Lots	72
No. of Apartments/Houses	62
No. of Beds (for Hospitals)	NA
No. of Guestroom (for Hotels)	NA
No. of Blocks / No. of Storeys	2 Blocks/5 Storeys
No. of Phases	1

2.2 Project Cost

M&E Services Cost Plan (S$ x 1M)						
Services	EI	ACVI	LEI	FFAI	PSI	SPFI (including water features)
Estimate	-	-	-	-	-	-
Awarded	0.9381	0.8653	0.60	0.25	1.0017	0.12

Total Project Construction Cost (S$ x1M)			
	Site Clearance	Piling Works	Main Contract
Estimate	-	-	-
Awarded	-	0.72	22

Site Clearance shall include earth work, soil improvement, service diversion and termination.

2.3 Scope of Works

2.3.1 Scope of Consultancy Services

Conceptual/Schematic Design	✓
Detailed Design	✓
Tender Documentation	✓
Tender Evaluation	✓
Contract Supervision	✓
M&E Costing	✓
Submissions to Authority	✓

(✓*where applicable*)

2.3.2 Scope of M&E Services

ELECTRICAL	✓	AIR CONDITIONING	✓	SPRINKLER	✓	SANITARY	✓	SWIMMING POOL	✓
LIFT	✓	MECHANICAL VENTILATION	✓	FIRE ALARM	✓	COLD WATER	✓	STEAM BOILER	
ESCALATOR		MECHANICAL SMOKE EXTRACT	✓	HOSEREEL	✓	HOT WATER	✓	FUEL STORAGE	
PABX		COMPUTER A/C		WET RISER		TOWN GAS	✓		
SECURITY	✓	BST CARPARK EXH	✓	DRY RISER	✓	LPG GAS			
TELELIFT		HEATING				MEDICAL GAS			
DATA COMM.									
FLUSHFLOOR TRUNKING									

(✓*where applicable*)

2.3.3 Submission to Relevant Authorities by Others

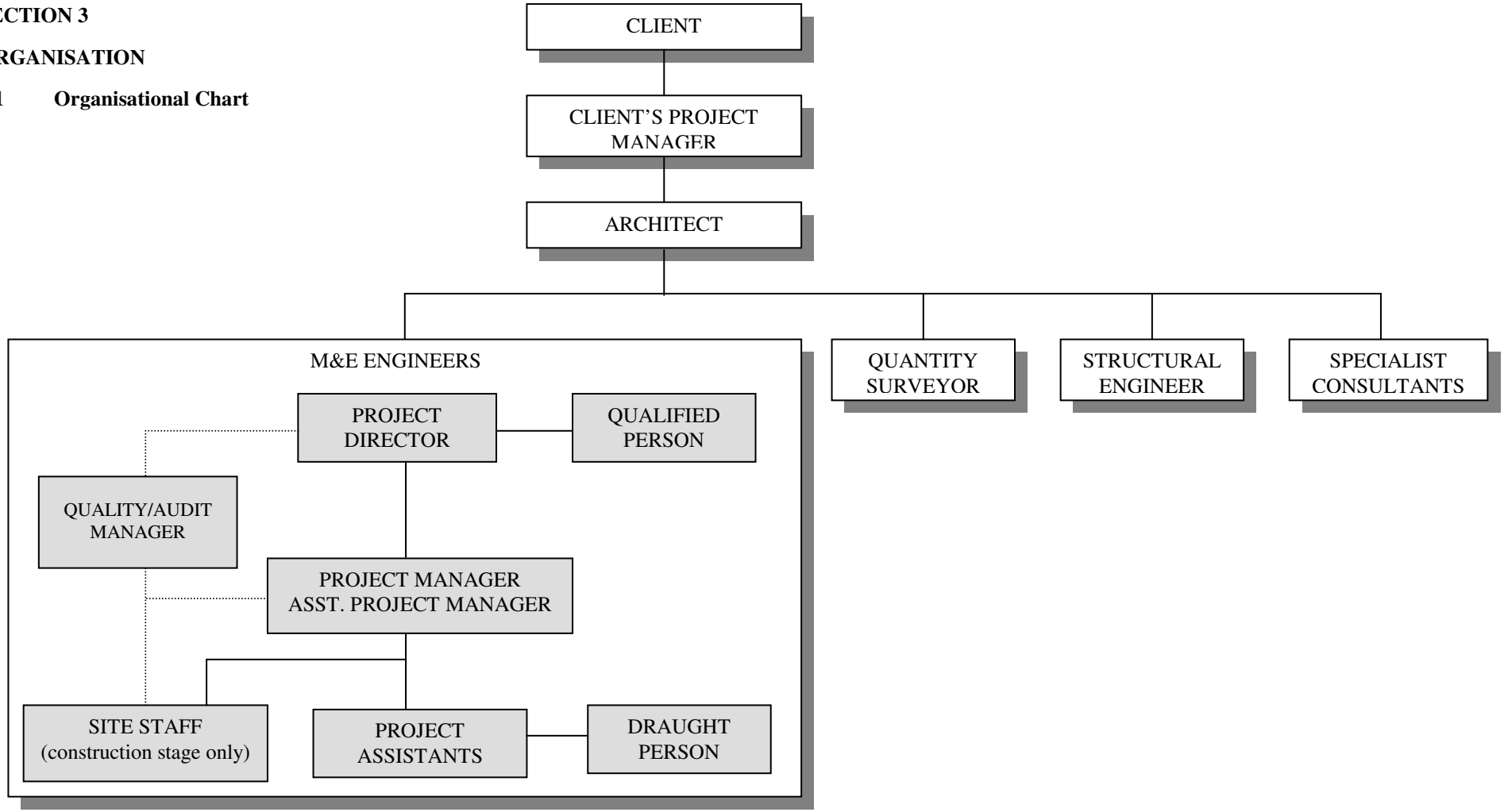
EJECTOR & DIVERTER	✓	SUMP PUMP	✓	FUEL OIL TANK		LIFT & ESCALATOR	✓	PRESSURE VESSEL		HOISTS		FOAM	

(✓*where applicable*)

SECTION 3

ORGANISATION

3.1 Organisational Chart



SECTION 3

ORGANISATION

3.2 AEC's Project Team Member

TITLE		NAME
Project Director		Richard Teo (RT)
Qualified Person	Mechanical	Loh Chew Thong (LCT)
	Electrical	Loh Fook Yuen (LFY)
Project Manager		Loh Fook Yuen (LFY)
Assistant Project Manager		Yip Y F (YYF)
Project Assistant (Mech)		-
Project Assistant (Elect)		Lim C H (LCY)
Draughtsperson		Common Pool
Resident Engineer (M&E)		Mr Tan Y P

3.3 Client/Client's Representatives

Client: Keppel Land Realty Pte Ltd
(Developer)

Address: 230 Victoria Street #14-01/10
Bugis Junction Towers
Singapore 188024

Tel: 6338 8111

Fax: 6337 7206

Client: Poh Lian Construction Pte Ltd
(Main Contractor)

Address: 103 Defu Lane 10, 2nd Floor
Poh Lian Building 1
Singapore 539223

Tel: 6284 7622

Fax: 6284 1353

Client's Representatives:-

Name of Firm	Contact Person	Contact
Keppel Land Realty Pte Ltd	Name: Mr Lee Kia Young Position: Project Manager	Tel: 6433 7615 Fax: 6338 6736 Handphone: 9689 2350 Email: leeky@keppeland.com.sg
Poh Lian Construction Pte Ltd	Name: Mr Tan Soon Kian Position: Executive Director	Tel: 6284 7622 Fax: 6284 1353 Handphone: 9677 0062 Email: sktan@pohlian.com.sg
Poh Lian Construction Pte Ltd	Name: Mr Tan Thiam Huat Position: Project Director	Tel: 6284 7622 Fax: 6284 1353 Handphone: 9732 9718 Email: thtan@pohlian.com.sg
	Name: Position:	Tel: Fax: Handphone: Email:

3.4 **Other Consultants** (Local)

Function / Name of Firm	Contact Person	Contact
Architect Ong & Ong Architects	Name: Mr Thomas Ho Position: Director	Tel: 6258 8666 Fax: 6259 8648 Handphone: - Email: ho.thomas@@ong-ong.com
Quantity Surveyor Rider Hunt Levett & Bailey	Name: Ms Joanne Muk Position: Senior Quantity Surveyor	Tel: 6339 1500 Fax: 6339 1521 Handphone: - Email: joannemuk@rhlb.com.sg
Structural Engineer KTP Consultants Pte Ltd	Name: Ms Tan G B Position: Associate Director	Tel: 6273 5622 Fax: 6273 8454 Handphone: - Email: tangb@ktp.com.sg
Interior Designer NA	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant CCW Acoustics Pte Ltd	Name: Mr Cheah B K Position: Director	Tel: 6278 4918 Fax: 6275 7206 Handphone: 98182289 Email: ccw@ccw.com.sg
Landscape Architect Tierra Design (S) Pte Ltd	Name: Ms Chng Tuan Hui Position: -	Tel: 6334 2595 Fax: 6334 7432 Handphone: - Email: design@tierra.com.sg
Design Consultant NA	Name: Position:	Tel: Fax: Handphone: Email:

3.4 Other Consultants (Overseas) – **NOT USED**

Function / Name of Firm	Contact Person	Contact
Architect	Name: Position:	Tel: Fax: Handphone: Email:
M&E Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Quantity Surveyor	Name: Position:	Tel: Fax: Handphone: Email:
Structural Engineer	Name: Position:	Tel: Fax: Handphone: Email:
Interior Designer	Name: Position:	Tel: Fax: Handphone: Email:
Lighting Consultant	Name: Position:	Tel: Fax: Handphone: Email:
Acoustic Consultant	Name: Position:	Tel: Fax: Handphone: Email:
_____	Name: Position:	Tel: Fax: Handphone: Email:

3.5 Contractors/Sub-Contractors

Function / Name of Firm	Contract *	Contact Person	Contact
Main Contractor Poh Lian Construction Pte Ltd		Name: Mr Ng Kok Ie Position: Project Manager	Tel: 6467 9281 / 6467 9286 Fax: 6467 3218 Handphone: - Email: ngkokie@pohlian.com.sg
Air Conditioning & Ventilation Installation Sub-Contractor Powen Electrical Engineering Pte Ltd		Name: Mr Calvin Heng Position: Project Manager	Tel: 64686868 Fax: 67631908 Handphone: - Email: calvinheng@powen.com.sg
Plumbing & Sanitary Installation Sub-Contractor Zheng Keng Engineering Construction Pte Ltd		Name: Mr Sam Yeo Position: Project Manager	Tel: 67568610 Fax: 67534718 Handphone: 98757136 Email: zhengkeng20@yahoo.com.sg
Electrical Installation Sub-Contractor Powen Electrical Engineering Pte Ltd		Name: Mr Calvin Heng Position: Project Manager	Tel: 64686868 Fax: 67631908 Handphone: - Email: calvinheng@powen.com.sg
Lift & Escalator Installation Sub-Contractor Ryoden (S) Pte Ltd		Name: Mr Jacky Lim Position: Sales Executive	Tel: 68425678 Fax: 67482292 Handphone: 97650129 Email: jacky@rs.meap.com
Fire Fighting & Alarm Installation Sub-Contractor Powen Electrical Engineering Pte Ltd		Name: Mr Calvin Heng Position: Project Manager	Tel: 64686868 Fax: 67631908 Handphone: - Email: calvinheng@powen.com.sg
Swimming Pool Filtration Plant Installation Sub-Contractor AquaTech Products & Services Pte Ltd		Name: Mr Jonathan Ang Position: General Manager	Tel: 68421188 Fax: 68420168 Handphone: 97899482 Email: aquatech@singnet.com.sg
Carpark System Installation Sub-Contractor NA		Name: Position:	Tel: Fax: Handphone: Email:

** Type of Contract*
- *NSC (Nominated Sub-Contract)*
- *DSC (Domesticated Sub-Contract)*
- *DC (Direct Contract)*
- *NS (Nominated Supplier)*

3.6 Authorities

Authorities/Department	Contact Person	Tel/Fax Nos./E-mail
SP PowerGrid:		
(a) Sub-Station		
(b) Diversion	Mr S. Rama Chandran	Fax:6279 9590
SP Services:		
(a) Customer Supply		
(b) Installation		
(c) Meter Section		
(d) Road Lighting		
TFCC:		
(a) SCV		
(b) SingTel	Mr Lim Keng Tiong	Tel:6848 5410 Fax:6848 4110
(c) IDA		
BCA:		
(a) Building Plan		
FSSD:		
(a) Building Plan	Ms Kwan Lian Sian	Tel:6848 1455 Fax:68481490
(b) M&E Plan	Mr Lau Heng Hui	Tel:68481413 Fax:68481490
PUB (Water Supply) Network Dept:		
(a) Water Conservation		
(b) Plumbing Plan	Ms Norain Binte Dalial	Tel: 6731 3762
(c) Diversion		
PUB Water Reclamation (Network) Dept:		
(a) Building Plan/CBPU		
(b) M&E Plan	Mr Han Kit Juan	Tel: 6731 9155
(c) Diversion		
City Gas Pte Ltd:		
(a) Planning/Submission	Mr Liew K B	Tel:6586 8846
(b) Installation/Inspection	Mr Lim Teck Seng	Tel: 6586 8872
PowerGas Pte Ltd		
(a) Diversion		
NEA (Pollution Control)		
(a) Planning/Submission		
(b) Inspection		

SECTION 4

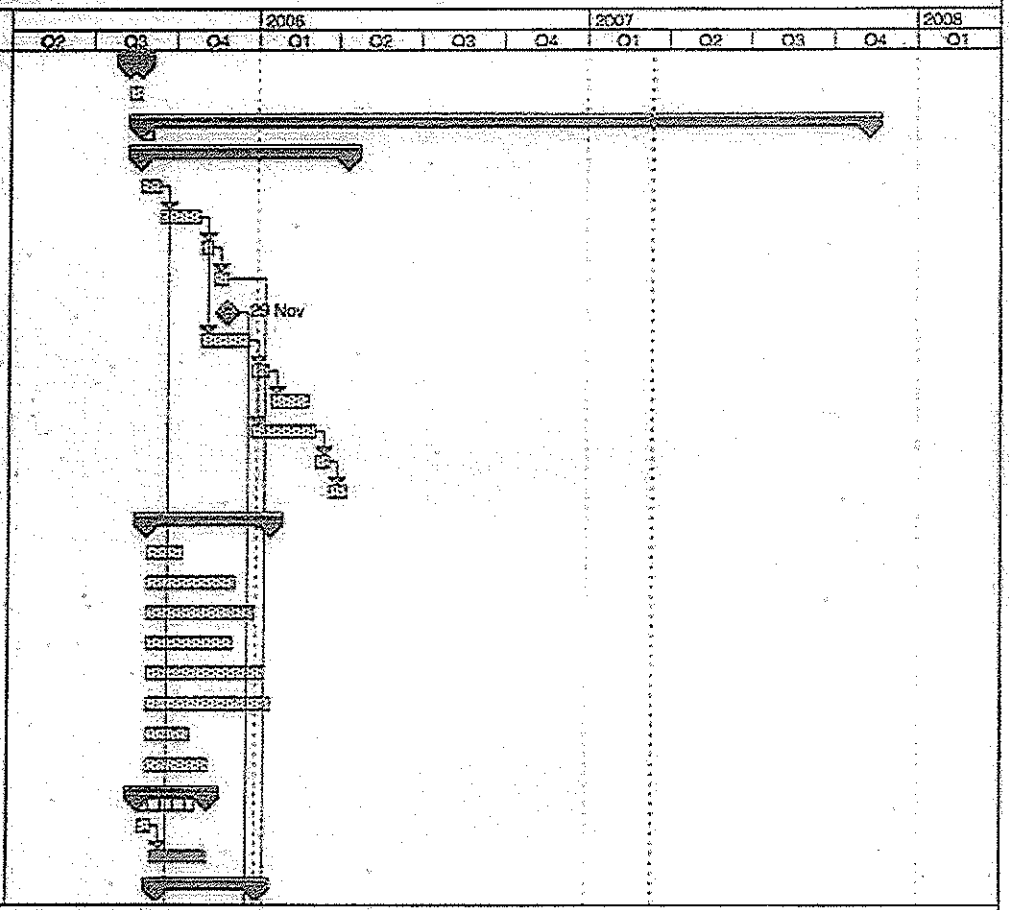
PROGRAMME

4.1 Overall Programme (refer to attach master programme)

ID	TASK NAME	MONTHS	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1.	Preliminary Planning																									
2.	Planning Submission																									
3.	Detail Design																									
4.	BP Submission																									
5.	BP Submission (Amendments)																									
6.	Tender Period for Piling																									
7.	Tender Period for Sub-Structure																									
8.	Tender Period for Super-Structure																									
9.	Piling Period																									
10.	Sub-Structure Construction Period																									
11.	Super-Structure Construction Period																									
12.	TOP																									
13.	CSC																									

TRESOR

ID	Task Name	Duration	Start	Finish
1	GENERAL	10 days	Wed 10-08-05	Tue 23-08-05
2	MOBILISATION	10 days	Wed 10-08-05	Tue 23-08-05
3	CONTRACT PERIOD	565 days	Wed 24-08-05	Fri 09-11-07
4	DESIGN & SUBMISSION	153 days	Wed 24-08-05	Tue 11-04-06
5	SOIL INVESTIGATION	16 days	Wed 24-08-05	Wed 14-09-05
6	STRUCT DESIGN (Foundation)	32 days	Thu 15-09-05	Fri 28-10-05
7	AC CHECKER	10 days	Mon 31-10-05	Fri 11-11-05
8	SUBMIT BCA FOR APPROVAL	11 days	Mon 14-11-05	Mon 28-11-05
9	APPROVAL TO COMMENCE WORK	0 days	Tue 29-11-05	Tue 29-11-05
10	STRUCT DESIGN (Superstr)	40 days	Mon 31-10-05	Fri 23-12-05
11	AC CHECKER	15 days	Mon 26-12-05	Fri 13-01-06
12	SUBMIT BCA FOR APPROVAL	18 days	Tue 17-01-06	Mon 27-02-06
13	STRUCT DESIGN (Env Deck)	40 days	Mon 26-12-05	Tue 07-03-06
14	AC CHECKER	11 days	Wed 08-03-06	Wed 22-03-06
15	SUBMIT BCA FOR APPROVAL	14 days	Thu 23-03-06	Tue 11-04-06
16	M&E DESIGN & SUBMISSION	93 days	Thu 01-09-05	Mon 16-01-06
17	SP POWERGRID - SUBSTATION	26 days	Thu 01-09-05	Mon 10-10-05
18	PUB WATER RELCAIMATION - SANITARY	71 days	Thu 01-09-05	Thu 08-12-05
19	PUB (WATER SUPPLY) - DOMESTIC W.S	88 days	Thu 01-09-05	Thu 29-12-05
20	CITY GAS - GAS SUPPLY	69 days	Thu 01-09-05	Mon 05-12-05
21	FSSD - AC & MV	93 days	Thu 01-09-05	Mon 09-01-06
22	FSSD - FIRE & ALARM	98 days	Thu 01-09-05	Mon 16-01-06
23	TFCC - TELECOMS	35 days	Thu 01-09-05	Wed 19-10-05
24	STARHUB - SCV	49 days	Thu 01-09-05	Tue 08-11-05
25	DEMOLITION WORKS	55 days	Wed 24-08-05	Tue 08-11-05
26	APPL FOR PERMIT	10 days	Wed 24-08-05	Tue 06-09-05
27	DEMOLITION	45 days	Wed 07-09-05	Tue 08-11-05
28	TEMPORARY WORKS	79 days	Thu 15-09-05	Tue 03-01-06

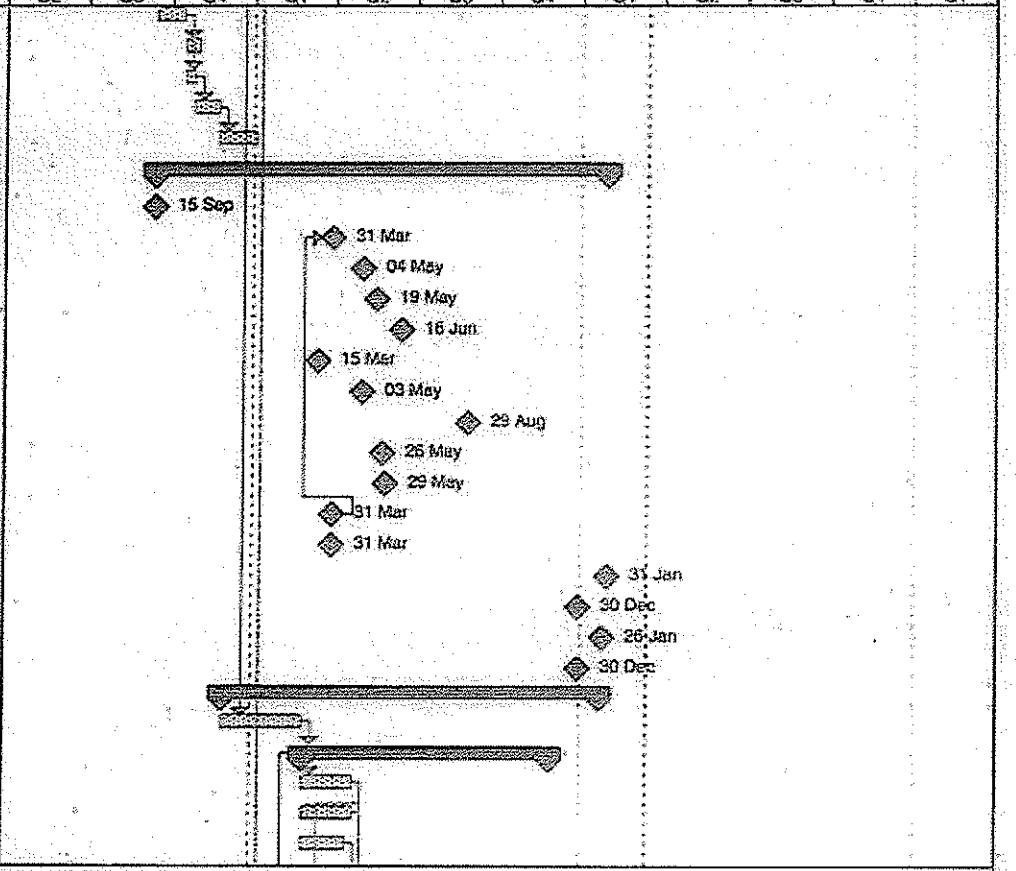


Project: THE TRESOR (Rev E)
Date: Wed 14 Mar '07

Critical	Milestone	Rolled Up Baseline	
Critical Split	Summary Progress	Rolled Up Baseline Milestone	
Critical Progress	Summary	Rolled Up Milestone	
Task	Rolled Up Critical	External Tasks	
Split	Rolled Up Critical Split	Project Summary	
Task Progress	Rolled Up Critical Progress	External Milestone	
Baseline	Rolled Up Task	External Milestone	
Baseline Split	Rolled Up Split	Deadline	
Baseline Milestone	Rolled Up Task Progress		

TRESOR

ID	Task Name	Duration	Start	Finish
29	STRUCT DESIGN	22 days	Thu 15-09-05	Fri 14-10-05
30	QUOTATION & AWARD OF TEMP WORKS	11 days	Mon 17-10-05	Mon 31-10-05
31	SUBMIT QAQC FOR APPROVAL	8 days	Mon 17-10-05	Wed 26-10-05
32	SUBMIT BCA FOR APPROVAL	19 days	Thu 27-10-05	Tue 22-11-05
33	COMMENCE TEMP WORKS	30 days	Wed 23-11-05	Tue 03-01-06
34	CONFIRMATION OF SUB CONTRACTS	350 days	Thu 15-09-05	Wed 31-01-07
35	LIFTS	0 days	Thu 15-09-05	Thu 15-09-05
36	ALUMINIUM & GLAZING	0 days	Fri 31-03-06	Fri 31-03-06
37	TILES	0 days	Thu 04-05-06	Thu 04-05-06
38	STONES	0 days	Fri 19-05-06	Fri 19-05-06
39	WARDROBES, KITCHENS &VANITY CABINETS	0 days	Fri 16-06-06	Fri 16-06-06
40	KITCHEN APPLIANCES	0 days	Wed 15-03-06	Wed 15-03-06
41	SHOWER SCREENS	0 days	Wed 03-05-06	Wed 03-05-06
42	IRONMONGERY	0 days	Tue 29-08-06	Tue 29-08-06
43	SANITARY WARES, FITTINGS & ACCESSORIES	0 days	Fri 26-05-06	Fri 26-05-06
44	TEAK STRIP FLOORING	0 days	Mon 29-05-06	Mon 29-05-06
45	WATER HEATERS	0 days	Fri 31-03-06	Fri 31-03-06
46	AIRCOND SUPPLY	0 days	Fri 31-03-06	Fri 31-03-06
47	FITTING OUT FOR CLUB HOUSE	0 days	Wed 31-01-07	Wed 31-01-07
48	CHILDREN PLAYGROUND EQUIPMENT	0 days	Sat 30-12-06	Sat 30-12-06
49	SIGNAGES	0 days	Fri 26-01-07	Fri 26-01-07
50	LIGHT FITTINGS TO COMMON AREAS	0 days	Sat 30-12-06	Sat 30-12-06
51	SUB STRUCTURE	299 days	Wed 30-11-05	Mon 22-01-07
52	EARTH WORKS	52 days	Wed 30-11-05	Mon 27-02-06
53	RAFT FOUNDATION / BASMENT SLAB	199 days	Tue 28-02-06	Wed 29-11-06
54	GRID BU-BK / 50-75 (BLK 2)	40 days	Tue 28-02-06	Mon 24-04-06
55	GRID BA-BK / 67-75 (BLK 2)	40 days	Tue 28-02-06	Mon 24-04-06
56	GRID AA-AF / 1-39 (BLK 1)	35 days	Tue 28-02-06	Mon 17-04-06

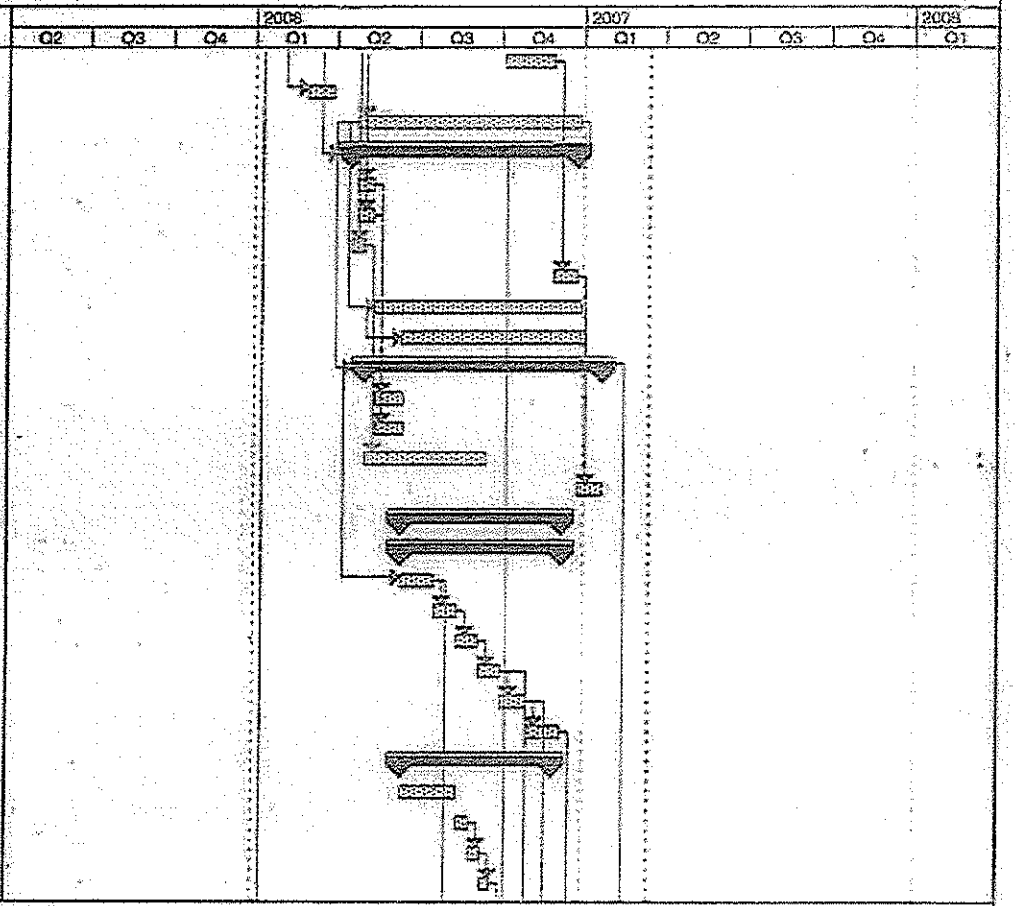


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TRESOR

ID	Task Name	Duration	Start	Finish
57	GRID BK-AF / 50-67	40 days	Thu 05-10-06	Wed 29-11-06
58	STORM WATER PIPE / PC SUMPS**	21 days	Tue 28-02-06	Tue 28-03-06
59	RETAINING WALLS	180 days	Tue 25-04-06	Thu 28-12-06
60	COLUMNS	182 days	Tue 18-04-06	Mon 25-12-06
61	GRID BU-BK / 50-75 (BLK 2)	14 days	Tue 25-04-06	Fri 12-05-06
62	GRID BA-BK / 67-75 (BLK 2)	14 days	Tue 25-04-06	Fri 12-05-06
63	GRID AA-AF / 1-39 (BLK 1)	12 days	Tue 18-04-06	Wed 03-05-06
64	GRID BK-AF / 50-67	18 days	Thu 30-11-06	Mon 25-12-06
65	WATERPROOFING TO RET WALLS	163 days	Mon 15-05-06	Sat 30-12-06
66	BACKFILLING / EXTRACT SHEETPILES	150 days	Tue 13-06-06	Wed 03-01-07
67	ENV DECK	191 days	Thu 04-05-06	Mon 22-01-07
68	GRID BU-BK / 50-75 (BLK 2)	23 days	Mon 15-05-06	Wed 14-06-06
69	GRID BA-BK / 67-75 (BLK 2)	23 days	Mon 15-05-06	Wed 14-06-06
70	GRID AA-AF / 1-39 (BLK 1)	98 days	Thu 04-05-06	Fri 15-09-06
71	GRID BK-AF / 50-67	21 days	Tue 26-12-06	Mon 22-01-07
72	SUPER STRUCTURE	131 days	Tue 13-06-06	Fri 08-12-06
73	BLOCK 2	131 days	Tue 13-06-06	Fri 08-12-06
74	1ST COL & 2ND STY SLAB	28 days	Tue 13-06-06	Wed 19-07-06
75	2ND COL & 3RD STY SLAB	18 days	Thu 20-07-06	Mon 14-08-06
76	3RD COL & 4TH STY SLAB	18 days	Tue 15-08-06	Thu 07-09-06
77	4TH COL & 5TH STY SLAB	18 days	Fri 08-09-06	Mon 02-10-06
78	5TH COL & ROOF SLAB	21 days	Tue 03-10-06	Tue 31-10-06
79	ROOF TRELLIS & OTHER RELATED WORKS	28 days	Wed 01-11-06	Fri 08-12-06
80	BLOCK 1	122 days	Thu 15-06-06	Wed 29-11-06
81	1ST COL & 2ND STY SLAB	45 days	Thu 15-06-06	Tue 15-08-06
82	2ND COL & 3RD STY SLAB	10 days	Wed 16-08-06	Tue 29-08-06
83	3RD COL & 4TH STY SLAB	9 days	Wed 30-08-06	Mon 11-09-06
84	4TH COL & 5TH STY SLAB	9 days	Tue 12-09-06	Fri 22-09-06

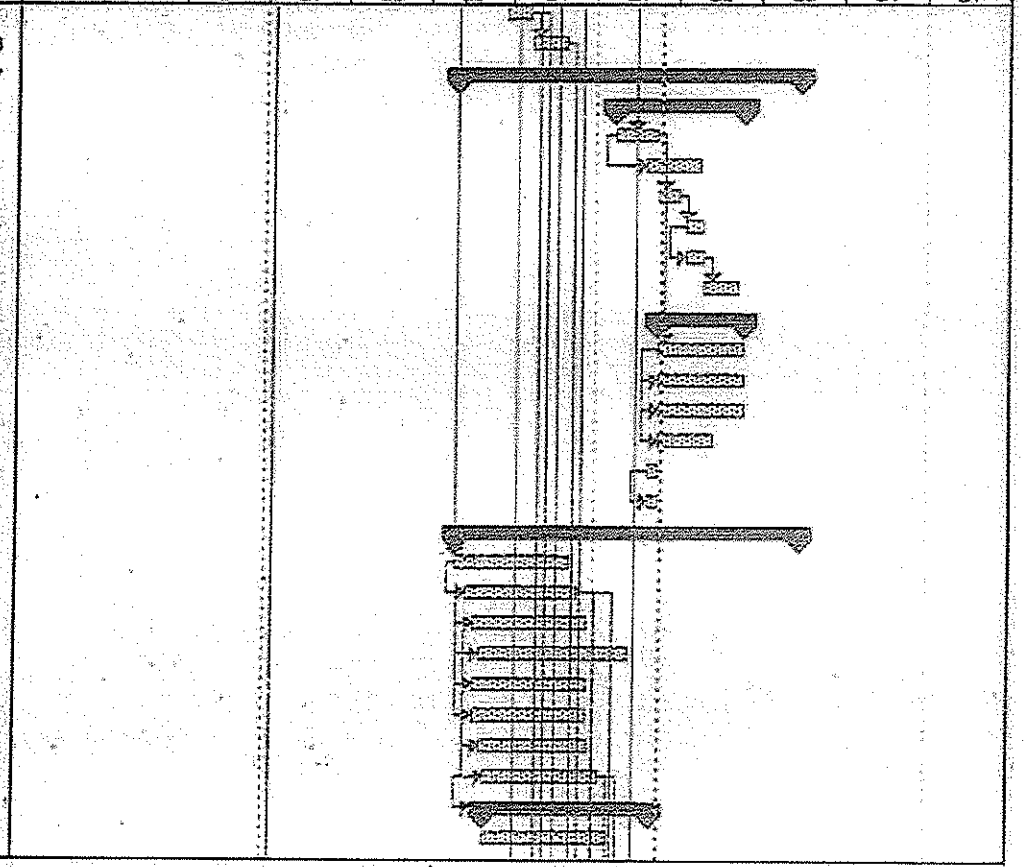


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Baseline	Rolled Up Task	External Milestone	
Baseline Split	Rolled Up Split	Deadline	
Baseline Milestone	Rolled Up Task Progress		

TRESOR

ID	Task Name	Duration	Start	Finish
85	5TH COL & ROOF SLAB	21 days	Mon 25-09-06	Fri 20-10-06
86	ROOF TRELLIS & OTHER RELATED WORKS	28 days	Mon 23-10-06	Wed 29-11-06
87	ARCHITECTURAL WORKS	269 days	Thu 03-08-06	Wed 15-08-07
88	BASEMENT	100 days	Tue 23-01-07	Thu 14-06-07
89	CEILING SKIMMING	30 days	Tue 23-01-07	Fri 09-03-07
90	M&E SERVICES	45 days	Mon 26-02-07	Thu 26-04-07
91	BRICKWORK	18 days	Mon 12-03-07	Tue 03-04-07
92	INSTAL HANDRAIL / COL GUARDS	14 days	Wed 11-04-07	Mon 30-04-07
93	DOOR FRAMES	14 days	Wed 11-04-07	Mon 30-04-07
94	PLASTERING	28 days	Tue 01-05-07	Thu 07-06-07
95	M&E INSTALLATION	70 days	Mon 12-03-07	Thu 14-06-07
96	FIRE PROTECTION	70 days	Mon 12-03-07	Thu 14-06-07
97	MECH VENTILATION	70 days	Mon 12-03-07	Thu 14-06-07
98	ELECTRICAL INSTALLATION	70 days	Mon 12-03-07	Thu 14-06-07
99	EJECTOR PUMP INSTALLATION	45 days	Mon 12-03-07	Thu 10-05-07
100	DOOR PANELS	10 days	Thu 01-03-07	Wed 14-03-07
101	PAINTING	10 days	Thu 01-03-07	Wed 14-03-07
102	BLOCK 2	269 days	Thu 03-08-06	Wed 15-08-07
103	CEILING SKIMMING	90 days	Thu 03-08-06	Tue 05-12-06
104	BRICKWORKS	90 days	Mon 14-08-06	Thu 14-12-06
105	DOOR FRAMES	90 days	Wed 23-08-06	Mon 25-12-06
106	WATER PONDING TEST (before/after)	120 days	Wed 30-08-06	Fri 09-02-07
107	M&E 1ST FIX	90 days	Wed 23-08-06	Mon 25-12-06
108	ALUM WINDOW FRAME	90 days	Wed 23-08-06	Mon 25-12-06
109	WATERPROOFING	85 days	Fri 01-09-06	Wed 27-12-06
110	INTERNAL PLASTERING	91 days	Wed 06-09-06	Mon 08-01-07
111	WALL TILING	128 days	Wed 06-09-06	Tue 06-03-07
112	Wall Tiling to Others	100 days	Wed 06-09-06	Fri 19-01-07

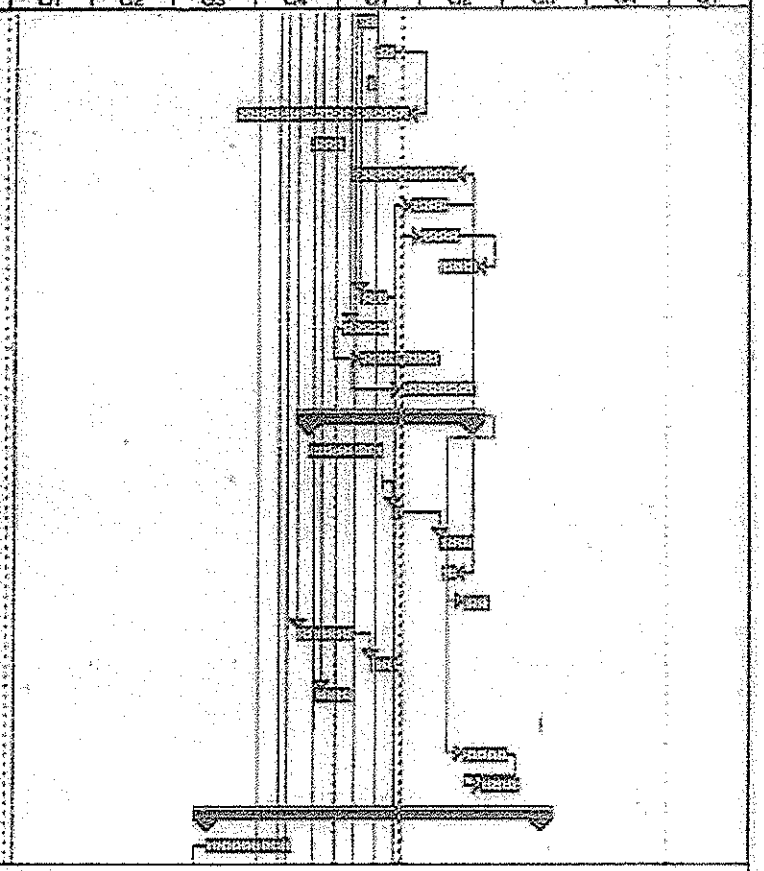


Project: THE TRESOR (Rev E)
Date: Wed 14 Mar '07

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Critical Split	Summary Progress	Rolled Up Baseline Milestone	
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Baseline Split	Rolled Up Split	Deadline	
Baseline Milestone	Rolled Up Task Progress		

TRESOR

ID	Task Name	Duration	Start	Finish
113	Hacking for Replacement (15 units)	15 days	Thu 25-01-07	Thu 15-02-07
114	Re-Laying Wall Tiles (12 units)	11 days	Tue 13-02-07	Tue 06-03-07
115	Laying of New Wall Tiles	3 days	Mon 05-02-07	Tue 13-02-07
116	FLOOR TILING	135 days	Wed 13-09-06	Thu 22-03-07
117	FLOOR TRAP RECTIFICATION	25 days	Tue 05-12-06	Wed 10-01-07
118	SHOWER SCREENS	80 days	Thu 18-01-07	Mon 14-05-07
119	FALSE CEILING	30 days	Mon 26-03-07	Thu 03-05-07
120	VANITY TOPS	30 days	Fri 06-04-07	Thu 17-05-07
121	MIRRORS	30 days	Thu 26-04-07	Wed 06-06-07
122	INTERNAL PAINTING (1ST)	17 days	Mon 29-01-07	Mon 26-02-07
123	GLAZING	32 days	Tue 09-01-07	Tue 27-02-07
124	TIMBER FLOORING	60 days	Mon 29-01-07	Wed 25-04-07
125	KITCHEN CABINETS / WARDROBES	60 days	Wed 14-03-07	Mon 04-06-07
126	DOOR LEAVES / IRONMONGERY	127 days	Mon 04-12-06	Thu 31-05-07
127	Review and Solution	68 days	Mon 04-12-06	Thu 22-02-07
128	Obtaining Sample	1 day	Thu 22-02-07	Thu 22-02-07
129	Submit Sample and Approval	5 days	Tue 06-03-07	Mon 12-03-07
130	Installation	25 days	Fri 27-04-07	Thu 31-05-07
131	INTERNAL PAINTING (2ND)	11 days	Mon 30-04-07	Mon 14-05-07
132	M&E FINAL FIX	20 days	Wed 23-05-07	Tue 19-06-07
133	EXTERNAL PLASTERING	45 days	Wed 22-11-06	Mon 22-01-07
134	EXTERNAL PAINTING	21 days	Sat 10-02-07	Fri 16-03-07
135	ROOF WATERPROOFING WORKS	30 days	Mon 11-12-06	Thu 18-01-07
136	HOUSEHOLD SHELTER INSPECTION	1 day	Wed 15-08-07	Wed 15-08-07
137	DEFECTS RECTIFICATION	34 days	Wed 23-05-07	Mon 09-07-07
138	UNITS HANDING OVER	30 days	Tue 12-06-07	Mon 23-07-07
139	BLOCK 1	252 days	Mon 14-08-06	Wed 15-08-07
140	CEILING SKIMMING	69 days	Mon 14-08-06	Wed 15-11-06

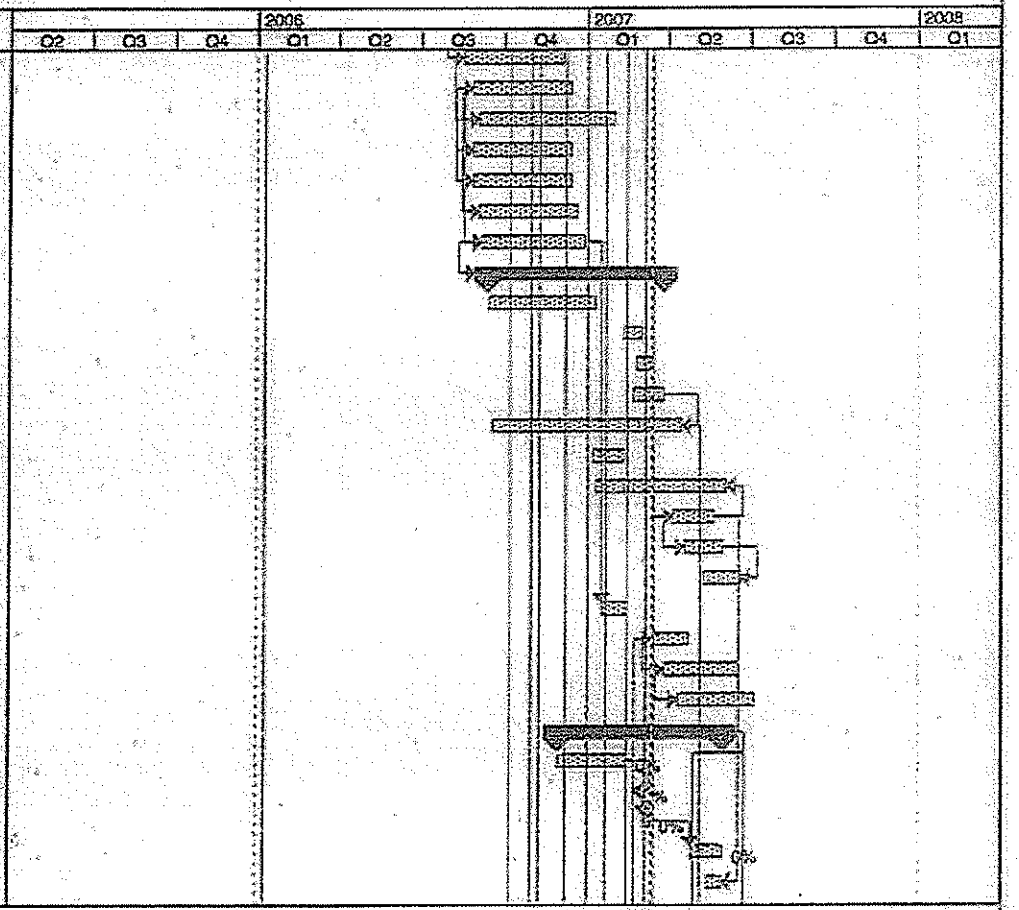


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TRESOR

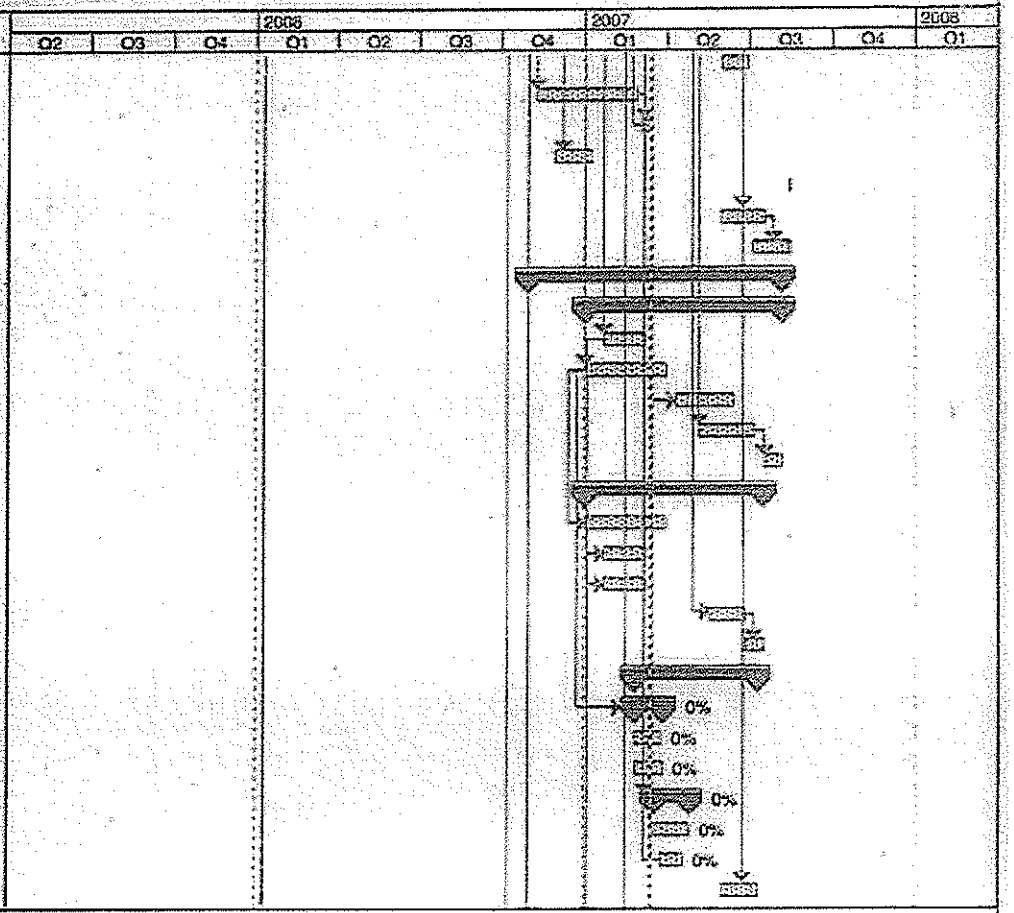
ID	Task Name	Duration	Start	Finish
141	BRICKWORKS	80 days	Thu 17-08-06	Tue 05-12-06
142	DOOR FRAMES	80 days	Mon 28-08-06	Thu 14-12-06
143	WATER PONDING TEST (before/after)	110 days	Mon 04-09-06	Wed 31-01-07
144	M&E 1ST FIX	80 days	Mon 28-08-06	Thu 14-12-06
145	ALUM WINDOW FRAME	80 days	Mon 28-08-06	Thu 14-12-06
146	WATERPROOFING	80 days	Mon 04-09-06	Thu 21-12-06
147	INTERNAL PLASTERING	83 days	Thu 07-09-06	Fri 29-12-06
148	WALL TILING	137 days	Thu 14-09-06	Tue 27-03-07
149	Wall Tiling to Others	87 days	Thu 14-09-06	Wed 10-01-07
150	Hacking for Replacement (12 units)	10 days	Mon 12-02-07	Sat 03-03-07
151	Re-Laying Wall Tiles (12 units)	12 days	Mon 26-02-07	Tue 13-03-07
152	Laying of New Wall Tiles	24 days	Thu 22-02-07	Tue 27-03-07
153	FLOOR TILING	149 days	Tue 19-09-06	Mon 16-04-07
154	FLOOR TRAP RECTIFICATION	28 days	Mon 08-01-07	Sat 10-02-07
155	SHOWER SCREENS	100 days	Thu 11-01-07	Mon 04-06-07
156	FALSE CEILING	32 days	Fri 06-04-07	Mon 21-05-07
157	VANITY TOPS	30 days	Fri 20-04-07	Thu 31-05-07
158	MIRRORS	30 days	Thu 10-05-07	Wed 20-06-07
159	INTERNAL PAINTING (1ST)	21 days	Thu 18-01-07	Wed 14-02-07
160	GLAZING	30 days	Wed 14-03-07	Mon 23-04-07
161	TIMBER FLOORING	60 days	Wed 28-03-07	Mon 18-06-07
162	KITCHEN CABINETS / WARDROBES	60 days	Thu 12-04-07	Wed 04-07-07
163	DOOR LEAVES / IRONMONGERY	128 days	Fri 01-12-06	Thu 31-05-07
164	Review and Soution	52 days	Fri 01-12-06	Wed 14-02-07
165	Obtaining Sample	1 day	Thu 22-02-07	Thu 22-02-07
166	Submit Sample and Approval	5 days	Tue 06-03-07	Mon 12-03-07
167	Installation	25 days	Fri 27-04-07	Thu 31-05-07
168	INTERNAL PAINTING (2ND)	12 days	Tue 15-05-07	Wed 30-05-07



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Baseline Milestone	Rolled Up Task Progress		

ID	Task Name	Duration	Start	Finish
169	M&E FINAL FIX	21 days	Fri 01-06-07	Fri 29-06-07
170	EXTERNAL PLASTERING	75 days	Fri 10-11-06	Tue 27-02-07
171	EXTERNAL PAINTING	10 days	Mon 05-03-07	Fri 16-03-07
172	ROOF WATERPROOFING WORKS	30 days	Thu 30-11-06	Tue 09-01-07
173	HOUSEHOLD SHELTER INSPECTION	1 day	Wed 15-08-07	Wed 15-08-07
174	DEFECTS RECTIFICATION	34 days	Fri 01-06-07	Wed 18-07-07
175	UNITS HANDING OVER	30 days	Thu 05-07-07	Wed 15-08-07
176	**M&E WORKS**	**197 days**	**Wed 01-11-06**	**Mon 06-08-07**
177	**SANITARY , PLUMBING & GAS**	**151 days**	**Wed 03-01-07**	**Mon 06-08-07**
178	STACK PIPE	30 days	Tue 23-01-07	Fri 09-03-07
179	WATER/GAS PIPINGS	60 days	Wed 03-01-07	Sat 31-03-07
180	WATER HEATERS	45 days	Thu 12-04-07	Wed 13-06-07
181	SANITARY WARES/FITTINGS	45 days	Mon 07-05-07	Fri 06-07-07
182	TESTING	14 days	Wed 18-07-07	Mon 06-08-07
183	**ELECTRICAL & TAS SERVICES**	**136 days**	**Wed 03-01-07**	**Mon 16-07-07**
184	CONCEAL CONDUIT/WIRING	60 days	Wed 03-01-07	Sat 31-03-07
185	ELECT RISER	30 days	Tue 23-01-07	Fri 09-03-07
186	TAS RISER	30 days	Tue 23-01-07	Fri 09-03-07
187	ELECT FITTINGS & SB	28 days	Fri 18-05-07	Tue 26-06-07
188	TESTING	14 days	Wed 27-06-07	Mon 16-07-07
189	**AC & MV**	**98 days**	**Mon 26-02-07**	**Tue 10-07-07**
190	**CONCEAL PIPEWORK/ AC DUCTS**	**23 days**	**Mon 26-02-07**	**Wed 28-03-07**
191	Blk 1 Ateration Works	21 days	Mon 26-02-07	Mon 26-03-07
192	Blk 2 Ateration Works	23 days	Mon 26-02-07	Wed 28-03-07
193	**FCU INSTALLATION**	**30 days**	**Mon 19-03-07**	**Thu 26-04-07**
194	Blk 1 Conceal FCU Installation	30 days	Mon 19-03-07	Thu 26-04-07
195	Blk 2 Conceal FCU Instalation	20 days	Mon 26-03-07	Thu 19-04-07
196	TESTING	28 days	Fri 01-06-07	Tue 10-07-07

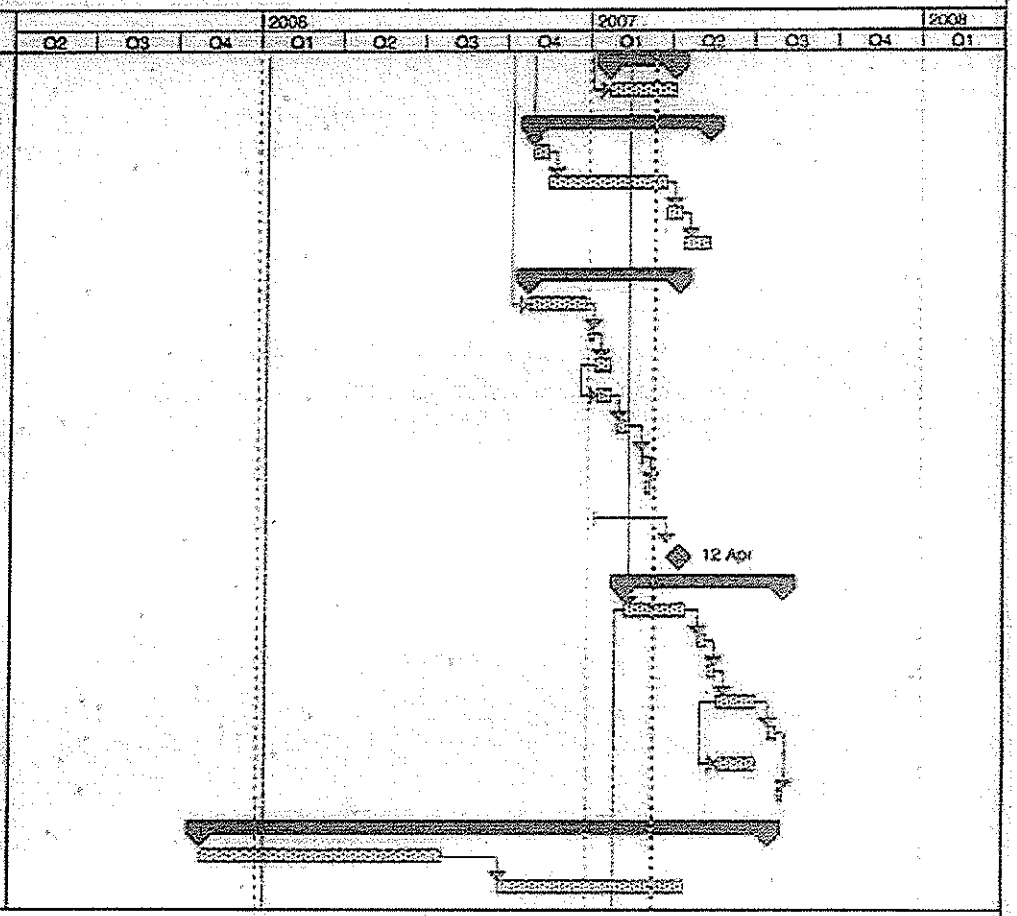


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TRESOR

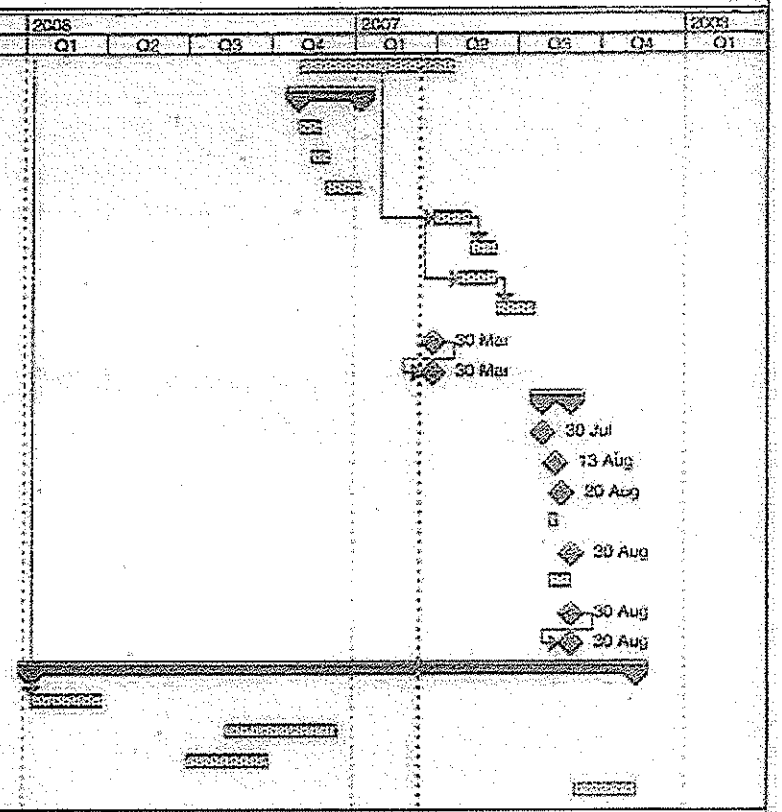
ID	Task Name	Duration	Start	Finish
197	FIRE PROTECTION	50 days	Tue 23-01-07	Thu 05-04-07
198	DRY RISER	50 days	Tue 23-01-07	Thu 05-04-07
199	LIFT INSTALLATION	137 days	Wed 01-11-06	Mon 14-05-07
200	HANDING OVER OF LIFT SHAFT	12 days	Wed 01-11-06	Thu 16-11-06
201	INSTALLATION OF RAILS / EQUIPMENTS	90 days	Fri 17-11-06	Tue 27-03-07
202	TESTING & COMMISSIONING	14 days	Wed 28-03-07	Fri 13-04-07
203	LIFT INTERIORS	21 days	Mon 16-04-07	Mon 14-05-07
204	SUB-STATION/TERBIN CENTRE	117 days	Fri 27-10-06	Thu 12-04-07
205	STRUCTURAL WORKS	45 days	Fri 27-10-06	Thu 28-12-06
206	CEILING SKIMMING	5 days	Mon 01-01-07	Fri 05-01-07
207	BRICKWORKS/GLASS BLOCKS	14 days	Mon 08-01-07	Thu 25-01-07
208	ALUMINIUM WORKS / LOURVES	11 days	Thu 11-01-07	Thu 25-01-07
209	PLASTERING WORKS	10 days	Fri 02-02-07	Wed 14-02-07
210	PAINTING	2 days	Thu 01-03-07	Fri 02-03-07
211	ELECTRICAL INSTALLATION	5 days	Mon 05-03-07	Fri 09-03-07
212	HANDING OVER TO POWER GRID	1 day	Mon 09-01-07	Mon 09-01-07
213	POWER TURN ON	0 days	Thu 12-04-07	Thu 12-04-07
214	SWIMMING POOL	122 days	Sat 10-02-07	Fri 03-08-07
215	RC WORKS	45 days	Sat 10-02-07	Wed 18-04-07
216	WATER PONDING TEST	7 days	Thu 03-05-07	Fri 11-05-07
217	WATERPROOFING	5 days	Mon 14-05-07	Mon 21-05-07
218	TILING	30 days	Thu 24-05-07	Wed 04-07-07
219	WATER PONDING TEST	7 days	Thu 19-07-07	Fri 27-07-07
220	M&E INSTALLATION	30 days	Thu 24-05-07	Wed 04-07-07
221	TESTING & COMMISSIONING	5 days	Mon 30-07-07	Fri 03-08-07
222	EXTERNAL WORKS	433 days	Tue 01-11-05	Thu 19-07-07
223	BOX CULVERTS / C.E DRAINS	180 days	Tue 01-11-05	Tue 25-07-06
224	BOUNDARY WALL	145 days	Wed 27-09-06	Wed 18-04-07



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Baseline Split	Rolled Up Split	Deadline	
Baseline Milestone	Rolled Up Task Progress		

ID	Task Name	Duration	Start	Finish
225	INTERNAL DRAINS	120 days	Wed 01-11-06	Thu 19-04-07
226	UPS	50 days	Wed 01-11-06	Mon 08-01-07
227	HOUSE SEWER	18 days	Wed 01-11-06	Fri 24-11-06
228	TELECOMS	14 days	Wed 15-11-06	Mon 04-12-06
229	WATER/GAS	26 days	Fri 01-12-06	Mon 08-01-07
230	SERVICE ROAD	30 days	Fri 30-03-07	Wed 09-05-07
231	CHILDREN PLAYGROUNG /BBQ PITS	21 days	Thu 10-05-07	Thu 07-06-07
232	LANDSCAPE WORKS	30 days	Fri 27-04-07	Thu 07-06-07
233	CLEANING UP	30 days	Fri 08-06-07	Thu 19-07-07
234	HANDING OVER MDF ROOM	0 days	Fri 30-03-07	Fri 30-03-07
235	HANDING OVER CDR ROOM	0 days	Fri 30-03-07	Fri 30-03-07
236	TOP CLEARANCE	23 days	Mon 30-07-07	Thu 30-08-07
237	ENV INSPECTION	0 days	Mon 30-07-07	Mon 30-07-07
238	PUB UNIT INSPECTION FOR WATER TURN ON	0 days	Mon 13-08-07	Mon 13-08-07
239	POWER GRID UNIT INSPECTION	0 days	Mon 20-08-07	Mon 20-08-07
240	CITY GAS UNIT INSPECTION	7 days	Mon 06-08-07	Tue 14-08-07
241	GAS TURN ON	0 days	Thu 30-08-07	Thu 30-08-07
242	BI INSPECTION (ARCH & MSE)	17 days	Mon 06-08-07	Tue 28-08-07
243	MSE LODGEMENT FOR TOP	0 days	Thu 30-08-07	Thu 30-08-07
244	QP TO LODGE FOR TOP	0 days	Thu 30-08-07	Thu 30-08-07
245	MISCELLANEOUS MILESTONES	457 days	Tue 10-01-06	Fri 09-11-07
246	SHOP DRAWINGS	45 days	Tue 10-01-06	Wed 29-03-06
247	WORK DEMOS	90 days	Tue 15-08-06	Fri 15-12-06
248	MOCK UP UNITS	66 days	Mon 03-07-06	Sat 30-09-06
249	SUBMISSION OF AS-BUILT DWGS	50 days	Mon 03-09-07	Fri 09-11-07



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SECTION 4

PROGRAMME

4.2 Authority Submission Status for M&E Services - 1st Submission

Service	Authority	Original Submission		Comments/Resubmission						Approval/
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	Clearance
Application for Electricity Supply	SP Services Ltd	NA								
Power Supply Substation	SP PowerGrid Ltd	10/10/05	9/11/05	17/11/05	9/12/05	NA	NA	NA	NA	21/12/05
Metering Layout	SP Services Ltd	NA								
Sanitary Installation	PUB Water Reclamation (Network) Dept	15/12/05	28/12/05	NA	NA	NA	NA	NA	NA	20/1/06
Domestic Water Supply	PUB (Water Supply) Network Dept	29/12/05	29/12/05	16/1/06	9/2/06	3/3/06	9/3/06			17/4/06
Gas Supply Installation	City Gas Pte Ltd	5/12/05	5/12/05	14/12/05	28/12/05	NA	NA	NA	NA	13/1/06
Air Conditioning & Ventilation Inst.	FSSD	9/1/06	24/8/06							31/8/06
Fire Fighting & Alarm Installation	FSSD	16/1/06	16/1/07							5/2/07
Telephone Installation	TFCC	19/10/05	23/11/05	18/1/06						26/1/06
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision	8/11/05	23/11/05	18/1/06						26/1/06
Fuel Storage	FSSD	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NEA (Pollution Control)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rainwater Collection System	PUB Catchment & WaterWays Dept	-	21/5/07							24/5/07

SECTION 4

PROGRAMME

4.3 Authority Submission Status for M&E Services (Amendments) - 2nd Submission – NOT USED

Service	Authority	Original Submission		Comments/Resubmission						Approval/ Clearance
		Scheduled	Actual	Comment	Resubmit	Comment	Resubmit	Comment	Resubmit	
Application for Electricity Supply	SP Services Ltd									
Power Supply Substation	SP PowerGrid Ltd									
Metering Layout	SP Services Ltd									
Sanitary Installation	PUB Water Reclamation (Network) Dept									
Domestic Water Supply	PUB (Water Supply) Network Dept									
Gas Supply Installation	City Gas Pte Ltd									
Air Conditioning & Ventilation Inst.	FSSD									
Fire Fighting & Alarm Installation	FSSD									
Telephone Installation	TFCC									
Broadband Co-axial Cable System (BCS)	Starhub Cable Vision									
Fuel Storage	FSSD									
	NEA (Pollution Control)									

SECTION 5

PROJECT RECORDS

5.1 List of Internal Files

Standard Files

File Ref:		File Ref:	
- Owner	✓	- Architect	✓
- Authorities	✓	- Other Consultants	✓
- Contractors	✓	- CC	✓
- CF	✓	- PQP/QSP	✓

Project Files to be initiated by PM as and when required

File Ref:		File Ref:		File Ref:	
- MC/EC	✓				

SECTION 5

PROJECT RECORDS

5.2 Filing of Drawings

The following team members shall take charge of filing of drawings, stamping "SUPERSEDED" drawings, etc.

Description	Team Member
Incoming Architectural Floor Plans	Lim C H
Incoming Architectural Sketches/Details	Lim C H
Incoming Structural Drawings	Lim C H
M&E Drawings	
- Electrical Installation	Lim C H
- Lift & Escalator Installation	Lim C H
- Air Conditioning & Ventilation Installation	Yip Y F
- Fire Fighting & Alarm Installation	Yip Y F
- Plumbing & Sanitary Installation	Yip Y F
- Swimming Pool & Filtration Installation	Yip Y F
Other Drawings	
- Landscape Drawings	Lim C H
- FSSD Approval Building Plan	Yip Y F

SECTION 6

INTERFACING

6.1 Method of Interface

Description	Method of Interface	
Client's Review & Approval	M&E Design Report	✓
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface With External Design Teams	M&E Design Report	
	Pre-planned meeting at fixed intervals	✓
	Telefax, letter and telephone	✓
	Email	✓
Interface Between Internal Design Teams	Telephone	✓
	Email	✓
	Internal Project Team Meeting	
	Circulation of Information	✓

(✓*where applicable*)

SECTION 6

INTERFACING

6.2 Internal Design Interface – NOT USED

Item No.	Description*	Required From	Required By	Date Required	Remarks

** Information required by INTERNAL DESIGN TEAM MEMBERS*

SECTION 6

INTERFACING

6.3 Circulation of Documents to External Parties

	Code: A - Approval Required C - For Comments I - For Information Only	Client/ Client Rep.	Client's Project Manager	Architect	Structural Engineer	Quantity Surveyor	
1.	**Letters/Fax:**						
a.	Project Design		A				
b.	Project Administration			A			
c.	Project Cost Estimate/Contract Cost						
2.	**Drawings**						
a.	Outline Design Drgs.		A	A			
b.	Sketch Design Drgs.		A	A			
c.	Final Design Drgs.		A	A			
d.	Shop Drawings			A			
e.	As Built Drgs.			A			
3.	**Other Document**						
a.	Specification						
b.	Tender Document						
c.	Tender Evaluation Report						
d.	Design Report		A				
e.	Progress Report			A		A	
f.	Financial Report						
g.	Minutes of Meeting						
h.	Inspection Report		I	I			
i.	Testing & Comm. Report		I	I			
j.	O & M Manual		I	I			

SECTION 7

WORK AUTHORISATION

Activity \ Authorised Signatories	PD	QP	PM	AE	SS
General Correspondences with Client			✓	✓	
General Correspondences with Other Consultants			✓	✓	
M&E Cost Estimate Report					
M&E Design Report	✓	✓	✓		
Check Prints			✓		
Tender Drawing Approval					
Tender Specification Approval					
List of Tenderers					
Tender Questionnaires					
Tender Reports					
Draft Letter of Award					
Review of Contractor's Shop Drawing			✓	✓	
Review of Contractor's Technical Submittal			✓	✓	
Review of Contractor's Sample Submittal			✓	✓	
Contractor's Request for Deviation			✓		
Progress Payment Valuation Form	✓		✓		
Final Account Valuation					
Draft Variation Order			✓		
Engineer/Architect's Instruction/Direction					
Site Instruction/Direction					
Correspondence/Submission to Authorities		✓			

(✓*where authorised*)

Key to abbreviations:-

PD : Project Director
QP : Qualified Person
PM : Project Manager/Assistant Project Manager
AE : Assistant Engineer
SS : AEC Site Staff

SECTION 8

DESIGN INPUT & METHODOLOGY

8.1 List of Client's Standards, Reference Documents or Brief – NOT USED

ITEM	KEPT BY

8.2 List of Applicable Code of Practice and Regulations

Electrical Wiring	~~BS~~	SS	IEE	~~NFPA~~	
Lightning Protection System	~~BS~~	SS			
~~Emergency Voice Communication System~~	~~BS~~	~~SS~~	~~NFPA~~		
Air Conditioning & Ventilation Installation	~~BS~~	~~AS~~	~~NFPA~~	SS	~~MS~~
Lift ~~& Escalator~~ Installation	~~BS~~	SS			
Sprinkler System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~LPC~~
~~Wet Riser System~~	~~BS~~	~~SS~~	~~NFPA~~	~~AS~~	~~MS~~
Automatic Fire Alarm System	~~BS~~	SS	~~NFPA~~	AS	~~MS~~
Sanitary System	~~BS~~	SS	~~NFPA~~	~~AS~~	~~MS~~
Plumbing System	BS	SS	~~NFPA~~	~~AS~~	~~MS~~
Town Gas/~~LPG Supply System~~	~~BS~~	SS	~~NFPA~~	~~AS~~	
~~Boiler and Steam Supply System~~	~~ASME~~	~~BS~~	~~AS~~		
~~Mechanical Smoke Control System~~	~~BS~~	~~NFPA~~	~~AS~~		

(Delete where necessary)

SECTION 8

DESIGN INPUT & METHODOLOGY

8.3 List of Design Guide or Handbook Used

Carrier's Handbook of Air Conditioning System Design

ASHRAE Handbooks

Institute of Plumbing's Plumbing Services Design Guide

8.4 List of Applicable Quality System Procedures

Alpha Engineering Consultant's Quality Management System Procedures

Section	Title	✓ where applicable
M1	Preparation of Consultancy Offer	
M2	Project Commissioning and Service Agreement	
M3	Design Control	
M4	Design Change Control	
M5	Tender Process and Evaluation	
M6	Authority Submission	✓
M7	Construction Process Control	✓
M8	Testing and Commissioning	✓
S1	Document Control	✓
S2	Documentation of Quality Management System Procedure	✓
S3	Documentation of Project Quality Plan	✓
S4	Specification Control	
S5	Library Control	
S6	Archive Control	✓
S7	Filing Control	✓
S8	Drawing Control	✓
S9	Administration Control	✓
S10	Purchasing Control	
S11	Training Control	
S12	Computer Control	
Q1	Quality System Audit	
Q2	Feedback Reporting	
Q3	Clients Feedback	
Q4	Management Review	

8.5 List of Software Used For Design/Analysis – NOT USED

DESCRIPTION/ PACKAGE NAME	VERSION	SUPPLIER/ SOURCE	PURPOSE	
Calculux	2.30	Philips	Lighting design	
Cophos	3.31	Zumtobel	Lighting design	
Carrier E20-II	3.21	Carrier	Programme for determination of heat load, duct size and its losses, etc.	
Gensize 2	2.1	Onan	Generator sizing	
Lift Traffic	-	Alpha Engineering	Lift traffic calculation	
Econdial	2.5	Merlin Gerlin	Design for low voltage network	
Hyena	4.00.1	ACADS-BSG	Fire Sprinkler & Hydrant Analysis	
Fault Level Calculation	-	Alpha Engineering	Calculation of voltage drop and fault level	

(✓*where applicable*)

SECTION 9

CLIENT'S REQUIREMENTS

9.1 List of Output Required by Client:-

Item	* Remarks
M&E Design Report	NA
M&E Cost Estimate Report	NA
Pre-Qualification of Tenderers	NA
Tender Documents	NA
Tender Report	NA
Payment Valuation for QS	A
Certificates of Supervision for TOP/CSC	I

** Remarks*

A: for approval *C: for comment* *I: for Information* *Re: for record*

Other purposes and for action: please specify.

9.2 Specific Procedures Required By Client *(If applicable)*

NOT USED

SECTION 10

LIST OF SUB-JOB

10.1 List of Sub-Job Numbers – NOT USED

Sub Job No	Description	Allocation Details